September 1998

UPDATE FACT SHEET

Waste Area Group 3 environmental investigation nearly complete

WASTE AREA GROUP 3

REMEDIAL INVESTIGATION/ FEASIBILITY STUDY

- Identifies the nature and extent of contamination at a site.
- Provides an assessment of the potential risks associated with a site.
- Provides a full analysis of cleanup alternatives.

BASELINE RISK ASSESSMENT

An assessment used to evaluate potential risks to human health and the environment.

TANK FARM

The Tank Farm consists of 20 underground stainless steel tanks inside concrete vaults with volume capacities up to 300,000 gallons. Accidental spills, ruptured or leaking transfer lines and an obstructed waste transfer line contributed to soil contamination there.

INTERIM ACTION

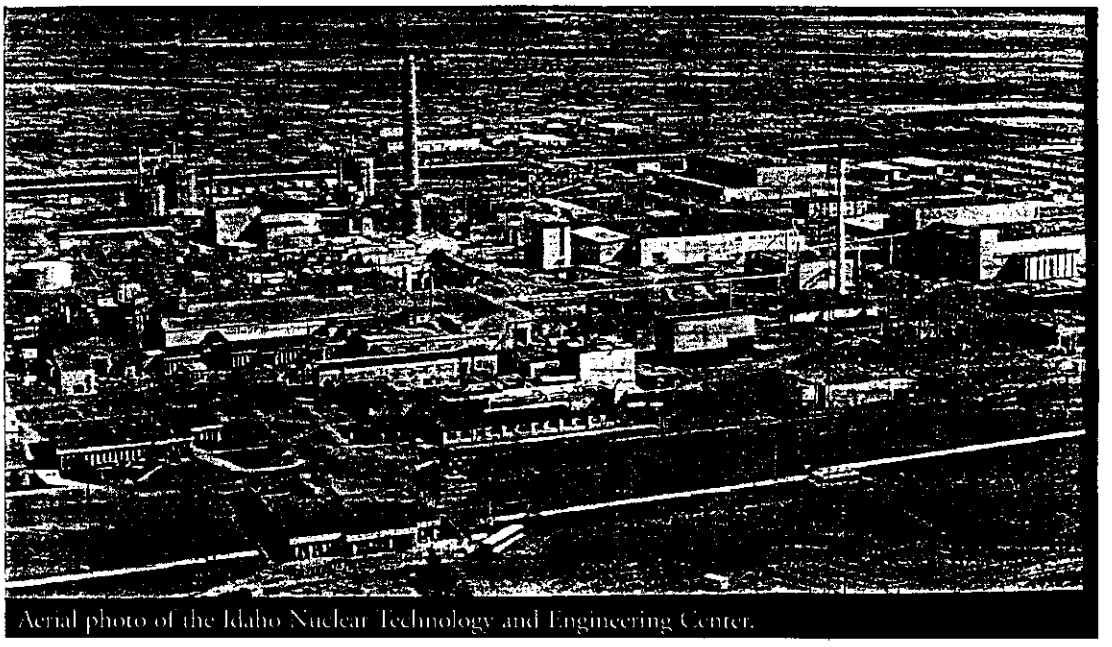
An action taken to address an immediate threat or when the problem is well-defined.

INTRODUCTION

This update fact sheet is the second released on the Waste Area Group 3 (i.e., Idaho Nuclear Technology and Engineering Center, formerly known as the Idaho Chemical Processing Plant) **remedial investigation/feasibility study.** The first fact sheet, dated Nov. 1997, discussed the findings of the **baseline risk assessment.** The purpose of this fact sheet is to discuss two new developments and progress made toward cleanup of Waste Area Group 3.

One development is a result of uncertainty identified in the Operable Unit 3-13 remedial investigation/feasibility study regarding contaminant source estimates and mobility at **Tank Farm** soil sites, which will delay a final cleanup decision until more information is collected. However, an **interim action** will be pursued to begin the remediation process while the Tank Farm soil sites are studied further.

The second development involves the preparation of a feasibility study supplement to help focus the alternative selection on the Tank Farm interim action, rather than a final long-term solution, and also to present a broader range of alternatives for other Operable Unit 3-13 sites. Additionally, this fact sheet explains the basis for no action and no further action recommendations for 51 Waste Area Group 3 sites evaluated in the Operable Unit 3-13 remedial investigation/feasibility study.



Aerial photo of the Idaho Nuclear Technology and Engineering Center.

Calcining

A process by which radioactive liquid wastes are converted into a more stable granular form.

Federal Facility Agreement and Consent Order

An agreement between the EPA, state of Idaho and DOE to evaluate waste disposal sites at the INEEL and perform remediation if necessary.

French Drain

A man-made drain that discharges liquid into the ground.

Perched Water

A geologic term used to describe a smaller body of water found above sedimentary layers and at a higher elevation than the regional aquifer.

Proposed Plan

A document requesting public involvement on a proposed remedial alternative (cleanup plan).

Facility Background

The Idaho Nuclear Technology and Engineering Center, located in the south-central portion of the INEEL, began operation in 1953 and has historically been a fuel reprocessing facility for defense projects and for research and storage of spent nuclear fuel. Uranium reprocessing consisted of dissolving spent nuclear fuel and extracting usable uranium from the liquid. The uranium fuel was generally sent offsite to other DOE facilities. The liquid waste was stored in stainless steel tanks known as the Tank Farm. Subsequently, some of the liquid wastes generated were **calcined** and the resultant granular solids stored in stainless steel bins where they remain today. During fuel reprocessing operations, radionuclides and other contaminants were released to the environment. Calcining of the remaining liquid wastes is currently proposed.

In 1992, DOE announced an end to the fuel reprocessing mission. This decision led to the phaseout of fuel dissolution, solvent extraction, product denitration and other processes. The current mission is to temporarily store spent nuclear fuel and other radioactive wastes for future disposition.

The *Federal Facility Agreement and Consent Order* lists 83 potential release sites within Waste Area Group 3, which encompasses the facility. Twelve additional sites were added since the signing of the document in 1991. The 95 sites have been organized into 13 operable units.

Waste Area Group 3 consists of contaminated pits, **french drains**, **perched water**, aquifer water, percolation ponds, rubble piles, spills, storage areas, above-and below-ground tanks and an injection well.

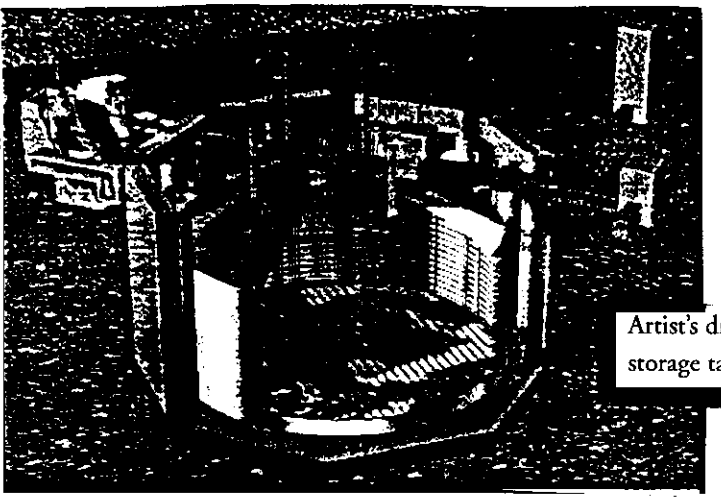
Status of Superfund Remediation

A **proposed plan** is being developed to identify the preferred remedial actions for the release sites in Waste Area Group 3 and to describe the other remedial options developed and evaluated in detail in the feasibility study. A feasibility study supplement is being completed to support the proposed plan. The Operable Unit 3-13 proposed plan is expected to be released in October 1998, followed by public meetings. The Operable Unit 3-13 Record of Decision is expected to be completed by July 1999.

New Study Begins On Tank Farm Soil Sites

The Tank Farm has been in operation since 1954 to provide interim storage for high-level liquid waste until it can be calcined. After calcining, the granular solids are stored in facilities that consist of stainless steel bins inside reinforced concrete vaults. The Tank Farm consists of 20 underground stainless steel tanks inside concrete vaults with volume capacities ranging from 18,400 to 300,000 gallons. The stainless steel tanks are contained inside concrete vaults and the tops of the vaults containing the largest tanks are located approximately 10 feet below ground surface, with their bases located approximately 45 feet below ground surface. Because some pipes leading to the Tank Farm have leaked liquid waste over the years, the soil in some locations within the Tank

Farm must be remediated. The final remediation of soil contamination located within the Tank Farm area comprises Operable Unit 3-14.



Artist's drawing of an underground storage tank at the Tank Farm.

Four preliminary cleanup alternatives were evaluated for the Tank Farm soils in the first remedial investigation/feasibility study. These alternatives were developed to manage the principal threats at the Tank Farm, which include external exposure to radionuclides in soils and leaching and transport of soil contaminants to the perched water and the aquifer. After reviewing the study results, DOE, the Environmental Protection Agency (EPA) and state of Idaho determined that additional information was required to make a final risk management decision for these sites. The agencies have postponed a final risk management decision of the Tank Farm because of the uncertainty concerning contaminant extent, site risks and contaminant migration. In addition, integration of cleanup actions with the **Idaho High Level Waste and Facility Disposition Environmental Impact Statement** and hazardous waste closure requirements will address the contents of the tanks, reasonable waste management alternatives and ultimate disposition of facilities that stored, treated or generated high level wastes. Additional site characterization and risk analysis will be performed at the Tank Farm in a separate study. **Remedial alternatives** will be developed in the new remedial investigation/feasibility study using these new data and presented to the public in a separate proposed plan under Operable Unit 3-14. Limited site characterization was conducted at the Tank Farm release sites during the Operable Unit 3-13 remedial investigation. The Operable Unit 3-14 Tank Farm remedial investigation/feasibility study will be used to better define the distribution of contaminants, contaminated soil volumes and contaminant mobility. In addition the Tank Farm remedial investigation/feasibility study will be used to verify contaminant migration predictions.

While the new investigation is ongoing, interim action remedial alternatives are proposed for the Tank Farm soil to minimize worker exposure to the site and control moisture that may infiltrate into the Tank Farm soils and mobilize the contaminants. Interim action remedies may include drainage improvements, moisture removal or temporary covers that will be used prior to implementing the final remedy. Remedies will be performed as an interim action until the final risk management decision.

Feasibility Study

The first feasibility study concluded that insufficient information existed to make a final risk management decision on the Tank Farm group. As discussed previously, it was decided that a separate remedial investigation/feasibility study was required to

Idaho High Level Waste and Facility Disposition Environmental Impact Statement

All federal agencies are required to consider environmental values in the planning of actions that may have an impact on the environment before the action is taken. An Environmental Impact Statement is a detailed level of review that focuses on the proposed action and the reasonable alternatives.

Remedial Alternatives

Cleanup remedies proposed for a contaminated area.

Presumptive Remedy

A cleanup method that has been generally applied and proven to be effective for CERCLA sites with similar characteristics.

INEEL Information Repositories

INEEL Technical Library
DOE Public Reading Room
1776 Science Center Drive
Idaho Falls, ID 83415
(208) 526-1185

University of Idaho Library
University of Idaho Campus
Moscow, ID 83843
(208) 885-6344

At the time of printing, a new repository is being added on the campus of Boise State University in the Albertsons Library. The address is 1910 University Drive.

The Administrative Record may be accessed on the Internet by typing http://ar.inel.gov/home.html on the command line. Any library with the Internet can access the Administrative Record. The Waste Area Group 3 investigation (Operable Unit 3-13) is part of the Administrative Record and consists of the following documents: DOE/ID-10572 and DOE/ID-10579.

effectively manage remedial actions at the Tank Farm. Separate consideration of the Tank Farm eliminates the need for final remedies in the feasibility study, but creates a need for interim measures. These are discussed in the feasibility study. Second, the sites CPP-84 and CPP-94 (Gas Cylinder Sites) and CPP-69 (SFE-20 Tank System) had limited evaluation in the feasibility study. Although these sites were included in the feasibility study, only single alternatives (**presumptive remedies**) were developed in the primary feasibility study effort. The agencies decided that these sites required a range of remedial alternatives to be developed in order to conduct a comparative analysis. They are included in the feasibility study as two new groups: Buried Gas Cylinders and SFE-20 Tank System.

In order to develop and analyze the remedial alternatives for Operable Unit 3-13, release sites with similar contaminant sources or contaminant of concern characteristics were combined into five groups in the comprehensive feasibility study. The remedial action groups are:

Group 1 - Tank Farm Soils

Group 2 - Soils Under Buildings/Structures

Group 3 - Other Surface Soil Sites

Group 4 - Perched Water

Group 5 - Snake River Plain Aquifer

Group 6 - Buried Gas Cylinders (CPP-84 and CPP-94)

Group 7 - SFE-20 Tank System

The alternatives for the Operable Unit 3-13 remedial action groups were presented in the Nov. 1997 fact sheet. A more detailed description of the alternatives will be presented in the proposed plan.

No Action Sites

No action sites are those that have no contaminant source or contaminant sources that are determined to be within acceptable risk levels in the baseline risk assessment. Listed below are no action sites that were identified during the investigation.

CPP-07 Soil Contamination Northwest of CPP-642 -- Steam from vent line contaminated nearby soil, which was removed and replaced with clean soil.

CPP-12 Contaminated Paint Chips and Pad South of CPP-603 -- Storage of radioactively contaminated equipment that contaminated a concrete pad where it was stored; source of contamination was removed.

CPP-16 Contaminated Soil from Leak in Line from CPP WM-181 to PEW -- Leak caused contamination of 75 square feet of soil, which was subsequently removed.

CPP-18 Gas Storage Building, Current Location of CPP-668 -- Area used to store radioactively contaminated gas cylinders; contamination source was removed.

CPP-21 Solid Waste Storage Bin South of CPP-601 -- Area used to store solid waste including paper, rags and contaminated metal; no contamination was detected.

CPP-24 CPP Tank Farm Area Bucket Spill -- Contaminated soil in the Tank Farm area from an accidental dumping of a bucket of liquid waste from inside Tank WM-180 in 1954; contamination from spill was removed.

CPP-29 Contaminated Soil North and West of the Main Stack (CPP-708) -- Seepage of mercuric nitrate and nitric acid at the base of the main stack; contaminated soil was removed.

CPP-30 Contaminated Soil in the Tank Farm Area Near Valve Box B-9 -- Soil was contaminated when radioactively contaminated equipment and clothing were placed on the ground; contaminated surface soil was removed.

CPP-43 Grease Pit South of CPP-637 -- Received an unknown quantity of oil and grease, which was removed.

CPP-52 Pickling Shed East of CPP-631 -- This site was used for treatment of pipes and other structural materials before being demolished in 1954; there was no evidence of contaminant releases.

CPP-53 Paint and Paint Solvent Area South of CPP-697 -- Paints and solvents were stored in this area; source of contamination was removed.

CPP-54 Drum Storage Area West of CPP-660 -- Drums of organic solvents and used oil were stored on pallets; there are no known releases, and drums have been removed.

CPP-62 Mercury-Contaminated Area Near CPP-TB-4 -- Spent paint solvents were discarded into the soil, which was later cleaned up.

CPP-68 Abandoned Gasoline Tank CPP VES-UTI-652 -- Site of a 500-gallon underground gasoline tank that was removed; risk is within acceptable range.

CPP-70 Septic Tank East of CPP-655 -- Consists of a 1,000-gallon septic tank and seepage pit used to treat sanitary waste generated in building CPP-655; there is no evidence hazardous wastes were discharged to the sewage system.

CPP-71 Seepage Pits West of CPP-656 -- Pits were used in conjunction with the septic tank located east of building CPP-655, site CPP-70; there is no evidence hazardous wastes were discharged to the sewage system.

CPP-72 CPP-758 Cesspool East of CPP-651 -- Used to treat sanitary sewage from temporary office trailers; there is no evidence that hazardous constituents were discharged to the sewage system.

CPP-73 Leaching Cesspool East of CPP TB-15 -- This septic system is connected to temporary building CPP T-5, which is used as a lunch/break room by construction contractors; there is no evidence hazardous constituents were discharged to the sewage system.

CPP-74 Seepage Pit and Septic Tank West of CPP-626 -- This septic system is used to treat sanitary waste from the fuel receiving and storage buildings and the storage basin change room; no evidence of hazardous waste discharge.

CPP-75 Septic Tank and Cesspool West of CPP-603 -- A septic tank and cesspool located inside the security fence, west of building CPP-603; there is no evidence hazardous constituents were discharged to the sewage system.

CPP-76 Septic Tanks and Cesspool West of CPP-659 -- Consists of two abandoned septic tanks and a leaching cesspool located to the west of building CPP-659; there is no evidence that hazardous constituents were discharged to the sewage system.

CPP-77 Seepage Pit and Cesspool North of CPP-662 -- Consists of a cesspool and a seepage pit located within the security fence. The septic system is used for treating sanitary waste generated at building CPP-662; there is no evidence hazardous constituents were discharged to the sewage system.

CPP-81 Abandoned CPP-637/CPP-601 VOG Line --The site of a plugged vessel off-gas line, which was removed in 1993 a removal action; the source of contamination was removed subsequent to the release.

CPP-82 Abandoned Line (1.5 in) PLA-766 West of Beech Street -- CPP-82 is divided into three locations associated with the removal of an underground pipe; the source of contamination was removed.

CPP-86 CPP-602 Waste Trench Sump -- CPP-86 is a sump associated with a trench and is part of the PEW system for building CPP-602. No contamination was found.

No Further Action Sites

No further action sites are those where no additional remedial actions or site controls are required to achieve an acceptable risk level. Listed below are the no further action sites identified.

CPP-06 Trench East of CPP-603 Fuel Storage Basin -- Consists of a trench/drainage ditch south of building CPP-603 that received a one-time discharge of 500,000 gallons of minutely radioactive basin water. Risk was found to be within acceptable range.

CPP-17 Soil Storage Area South of CPP Peach Bottom Fuel Storage Area -- Consists of two areas that were used for storing piles of low-level radioactively contaminated soil, asphalt, concrete, metal debris and other items generated during construction and maintenance activities. In 1992, the soil mounds and debris were removed. Risk was found to be within acceptable range.

CPP-22 Particulate Air Release South of CPP-603 -- Location of potential surface contamination of a 131,302-square-foot area associated with an air release. Most of this contamination was believed to have been removed during construction activities around this area. Risk was found to be within acceptable range.

CPP-39 CPP HF Storage Tank (YDB) and Dry Well -- Consists of a hydrofluoric acid storage tank containment vault and a 125-foot line connected to a limestone neutralization dry well. The line was removed in 1993. No radioactive constituents were associated with the process. Risk was found to be within acceptable range.

CPP-40 Lime Pit at the Base of the CPP-601 Berm and French Drain -- Site of a lime pit and associated piping that were used to neutralize leaks and spills of hydrofluoric acid from the product makeup area of building CPP-601. Radiological contamination was encountered during decontamination. Risk was found to be within acceptable range.

CPP-41 Fire Training Pits Between CPP-666 and CPP-663 -- Consists of two fire training pits where oils and organic materials were placed in metal drip pans and ignited for fire extinguishing practice. The final decision for these sites was the source of the contamination was removed.

CPP-42 Drainage Ditch West of CPP-637 -- Consists of a drainage ditch originally designed to handle precipitation runoff. It is suspected laboratory wastes may have been transported by hand from building CPP-637 and released into the soil at site CPP-42. Risk was found to be within acceptable range.

CPP-45 CPP-621 Chemical Storage Area Spills -- Site of various acid and aluminum nitrate spills beneath and around the storage area located east of Chemical Storage Pumphouse, CPP-621. There were no radioactive materials stored at this site. Risk was found to be within acceptable range.

CPP-46 CPP-637 Courtyard Pilot Plant Release -- Site of a 450-gallon, simulated-zirconium waste release located in the courtyard north of the Low Bay Laboratory, building CPP-637; risk was found to be within acceptable range.

CPP-47 Pilot Plant Storage Area West of CPP-620 -- During 1984, approximately 2 gallons of hydrofluoric acid were spilled at this site. Risk was found to be within acceptable range.

CPP-48 French Drain South of CPP-633 -- Location of a dump tank that was used as a french drain for excess nitric acid, aluminum nitrate, calcium nitrate and other chemicals used in the calcining process from the old Waste Calcining Facility. Risk was found to be within acceptable range.

CPP-49 PCB Transformer Yard (CPP-705) -- Location of a transformer oil spill with polychlorinated biphenyl (PCB) contamination that occurred on a cement pad. The pad has been encapsulated. Risk was found to be within acceptable range.

CPP-50 PCB Transformer Yard (CPP-731) -- Site of a PCB spill that was restricted to a concrete pad. Risk was found to be within acceptable range.

CPP-51 PCB Staging Area West of CPP-660 -- Site of a transformer leak of PCBs. The plastic sheeting on which the transformer leaked has been removed. The final decision for this site was the source of the contamination had been removed.

CPP-56 Nitric Acid Contamination South of CPP-734 -- Location of nitric acid contamination south of building CPP-734. The quantity of nitric acid discharged is unknown, however, the site was recommended for no further action based on cleanup activities subsequent to the release.

CPP-57 Sulfuric Acid Spills East of CPP-606 -- An area where sulfuric acid spilled and leaked from a tank east of the Service Building Powerhouse, CPP-606. The contaminated soil and the tank that leaked have been removed. The final decision for this site was that the source of contamination was removed subsequent to the release.

CPP-59 Kerosene Tank Overflow West of CPP-633 -- Site of two kerosene tanks. There have been two documented releases from this facility. Risk was found to be within acceptable range.

CPP-60 Paint Shop at Present Location of CPP-645 -- Site of a paint shop at the present location of building CPP-645. The paint shop building, source and contamination (if any) were removed when building CPP-645 was constructed. The final decision for this site was there is no evidence that hazardous constituents were discharged to the sewage system.

CPP-61 PCB Spill in CPP-718 Transformer Yard -- Site is the result of an oil spill containing PCBs. The PCB source was removed, but residuals remain in the soil. Potential radiological contamination was identified during removal activities. Risk was found to be within acceptable range.

CPP-63 Hexone Spill Near CPP-710 -- Site of a leak that occurred when the line was damaged by a construction backhoe. Sample results indicate all target volatile organic compound concentrations to be below detection limits. Risk was found to be within acceptable range.

CPP-64 Hexone Spill West of CPP-660 -- Hexone was spilled on a concrete pad due to a pierced barrel, and vermiculite was used to absorb the hexone; the source of contamination was removed subsequent to the release.

CPP-78 Contaminated Soil West of CPP-693, East of CPP-749 Dry Fuel Storage Area -- Consists of a 25-square-foot area of radioactively contaminated soil located west of building CPP-693 and east of the Dry Fuel Storage Area. Risk was found to be within acceptable range.

CPP-85 Waste Calcining Facility Hot Cell Blower Corridor -- The corridor was used to vent gases from the hot cells to building CPP-649 for HEPA filtering before discharge. Risk was found to be within acceptable range.

CPP-88 Radiologically Contaminated Soils -- Consists of mapped areas with radioactive soil contamination concentrations above background. Risk was found to be within acceptable range.

CPP-90 CPP-709 Ruthenium Detection -- Consists of the CPP Production Wells where trace amounts of Ru-106 were detected in 1959. The contamination occurred as a result of a deteriorated service waste line washing contaminated soil into the CPP Injection Well. Risk was found to be within acceptable range.

CPP-95 Wind-blown Plume -- Consists of areas outside the perimeter fence that are potentially contaminated as a result of wind-blown dispersion of radionuclides from facility operations. Risk was found to be within acceptable range.

Public Involvement

If you would like a briefing on the Waste Area Group 3 investigation or further information on the descriptions of no action and no further action sites, please call the INEEL Community Relations Office at (208) 526-4700 or the INEEL's toll free number at (800) 708-2680. An opportunity for public comment will be provided during the public meetings on the Operable Unit 3-13 proposed plan in Nov. 1998. The Operable Unit 3-13 proposed plan is scheduled to be released for public comment in Oct. 1998.

INEEL Environmental Restoration Program
P.O. Box 2047
Idaho Falls, ID 83403-2047

Address Service Requested